



DEPARTMENT OF
ECOLOGY
State of Washington

FACT SHEET

Proposed Permit Modification, 8C.2021.3D, of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 11, Integrated Disposal Facility, WA7890008967*

December 2022

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Proposed Permit Modification to Part III of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste, WA7890008967, Operating Unit Group 11, Integrated Disposal Facility.*

PERMITTEES

United States Department of Energy
Richland Operations Office
(Owner/Operator)
P.O. Box 550, MSIN H5-20
Richland, WA 99352

Central Plateau Cleanup Company
P.O. Box 1464
Richland, WA 99352

The Washington State Department of Ecology (Ecology) developed this Fact Sheet in accordance with the requirements of Washington Administrative Code (WAC) 173-303-840(2)(f). Its purpose is to discuss the proposed draft permit modification to Part III of the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste* (hereafter called the Hanford Site-wide Permit). All draft permits must be accompanied by a Fact Sheet that is supported by an administrative record and made available for public comment in accordance with WAC 173-303-840(2)(e). This Fact Sheet is supported by the Ecology Nuclear Waste Program (NWP) Administrative Record for this permit modification.

This proposed draft permit modification will add to Operating Unit Group (OUG) 11, Integrated Disposal Facility (IDF), Part III of the Hanford Site-wide Permit: two Leachate Collection System (LCS) Dangerous Waste Management Units (DWMUs).

This Fact Sheet is divided into six sections:

- 1.0 Hanford Site-Wide Permit Background.
- 2.0 IDF Operating Unit Group Description.
- 3.0 Class 3 Permit Modification Process for the IDF Operating Unit Group 11.
- 4.0 Proposed Modification to Part III of the Hanford Site-wide Permit.
- 5.0 Procedures for Reaching a Final Decision on the Draft Permit Modification.
- 6.0 State Environmental Policy Act.

1.0 HANFORD SITE-WIDE PERMIT BACKGROUND

Ecology's NWP manages dangerous waste within the State by writing permits to regulate its treatment, storage, and disposal.

Ecology has the authority to regulate dangerous waste and the dangerous waste components of mixed (radioactive and dangerous) waste, under 70.105 Revised Code of Washington (RCW) and WAC 173-303. The Hanford Site-wide Permit has requirements for the treatment, storage, and disposal of dangerous and mixed waste at Hanford. Ecology does not regulate waste that is

solely radioactive. The U.S. Department of Energy (USDOE) has the exclusive authority to regulate radioactive materials and radioactive waste at Hanford.

Ecology first issued the Hanford Site-wide Permit in 1994. Since 1994, the permit has been modified many times to incorporate changes or updates and to incorporate and closeout several DWMUs.

The Hanford Site-wide Permit provides standard and general facility conditions, as well as unit group conditions for the operation, closure, and post-closure care of mixed and dangerous waste Treatment, Storage and Disposal (TSD) Units at Hanford. These TSDs are administratively grouped into operating, closure, or post-closure unit groups in the Hanford Site-wide Permit. Each unit group may contain one or more DWMU.

The Hanford Site-wide Permit is organized as follows:

- Part I Standard Conditions.
- Part II General Facility Conditions.
- Part III Operating Units.
- Part IV Corrective Action for Past Practice Units.
- Part V Closure Units.
- Part VI Post-Closure Units.

Upon approval and issuance of this permit modification, the IDF will be authorized to operate the two LCS DWMUs as miscellaneous units to store leachate collected from the IDF Disposal Cells.

2.0 INTEGRATED DISPOSAL FACILITY OPERATING UNIT GROUP DESCRIPTION

The IDF is located on 82 hectares (202 acres) of land within the south-central portion of the 200 East Area of the Hanford Site. The IDF plays a vital role in supporting Hanford's Direct-Feed Low-Activity Waste (DFLAW) program, which is an important part of the Hanford cleanup mission. The purpose of the IDF is to provide a disposal facility for the permanent, environmentally safe disposition of immobilized low activity waste (ILAW) glass from the Waste Treatment and Immobilization Plant and other operational waste streams that meets Resource Conservation and Recovery Act (RCRA) requirements for land disposal.

This proposed permit modification will allow the Permittees to operate two LCS DWMUs, located north of the IDF Disposal Cells, as miscellaneous units to store liquid leachate in accordance with WAC 173-303-680. The miscellaneous units, also called Leachate Collection Units (LCUs), are approximately 30.9 meters (101.5 feet) in diameter and 2.5 meters (8.2 feet) high and are constructed of corrugated steel. The bottom of the side wall for each unit is bolted to a 0.45 meter (1.5 feet) thick, 1.4 meters (4.5 feet) deep concrete ringwall. A dual containment liner system is connected to the top, inside wall of each unit. Each unit includes ancillary equipment for the transfer of leachate from the disposal cells. Ancillary equipment is comprised of the Crest Pad Building, Leachate Transfer Building, combined sump, and transfer piping.

Note: The IDF is currently in a “pre-active life” status and is not permitted to receive any dangerous waste. The facility currently consists of one DWMU (Disposal Cell 1). Apart from this proposed modification, there is a separate Class 3 permit modification, which will bring the number of DWMUs up to four, including two landfill disposal cells, a storage pad, and a treatment pad. When this separate permit modification becomes effective, it will move the IDF into the Active Life phase of the facility to start receiving approved waste.

Type and Quantity of Waste

Leachate from the IDF Disposal Cells is conveyed from the leachate collection and removal system to the LCS DWMU. Each unit has a working capacity of 1,420,000 liters (375,000 gallons).

Basis for Permit Conditions

Ecology worked with the Permittees to develop permit conditions that apply to the operation and maintenance of the LCUs and associated ancillary equipment. As a result, Ecology has written permit conditions that require compliance with the regulations in WAC 173-303. The draft permit conditions are focused on the design and operation requirements found in WAC 173-303-680, *Miscellaneous units*, WAC 173-303-640, *Tank systems*, and WAC 173-303-650, *Surface impoundments*.

Ecology has drafted unit-specific permit conditions that amend the current permit to incorporate design requirements, construction requirements, and leachate collection component management.

The intent of this draft permit and associated permit conditions is supportive of Ecology’s mission to protect human health and the environment while ensuring proper operation of the LCUs and the associated ancillary equipment at the IDF.

3.0 CLASS 3 PERMIT MODIFICATION PROCESS FOR THE INTEGRATED DISPOSAL FACILITY OPERATING UNIT GROUP 11

The LCS DWMUs were constructed in accordance with WAC 173-303-640, *Tank systems*, and were originally designed to operate as central accumulation areas under the generator requirements of WAC 173-303-200. The LCS DWMUs were later determined to be best managed as RCRA-permitted storage units.

The LCS DWMUs look like and function similar to tank units. However, the system bottom was designed as a geomembrane liner system instead of a solid bottom, which does not meet the regulatory definition of a tank per WAC 173-303-040. Additionally, the liner system does not provide structural integrity independently; therefore, the system cannot pass a structural integrity test as a tank system. Since the LCS DWMUs do not meet the necessary design requirements for a tank system, Ecology determined these LCS DWMUs should be permitted as miscellaneous units in accordance with WAC 173-303-680, *Miscellaneous Units*. Per WAC 173-303-680(2), permit terms and provisions from both WAC 173-303-640, *Tank systems*, and WAC 173-303-650, *Surface impoundments*, are used for these miscellaneous units, as applicable.

The Permittees, USDOE and its contractor, Central Plateau Cleanup Company (CPCCo), requested a Class 3 permit modification to the IDF unit group of the Hanford Site-wide Permit in accordance with WAC 173-303-830(4)(c) on May 18, 2021. The Permittees initiated a public comment period for this Class 3 permit modification on May 24, 2021, to run through July 23, 2021, to allow the public to review the proposed Class 3 permit modification. The Permittees also held a virtual public meeting on GoToWebinar on June 24, 2021. Seven members of the public attended, and no comments were collected.

Ecology received 17 comments during the 60-day public comment period. Ecology addresses these comments in a response to comments document. This response to comments document accompanies the draft permit modification, and is available online at <https://ecology.wa.gov/Waste-Toxics/Nuclear-waste/Public-comment-periods>.

Ecology responded on July 27, 2021, that the permit modification was incomplete, according to WAC 173-303-840(1)(b). The Permittees provided additional information to Ecology on September 30, 2021, to make the Class 3 permit modification submittal complete. On December 1, 2021, Ecology completed the technical review and detailed the deficiencies in a formal letter to the Permittees. Ecology worked with the Permittees to resolve these deficiencies and we received the response to technical deficiencies on June 30, 2022. The Permittees provided the additional information to Ecology on July 25 and August 4, 2022, to support the development of the draft permit for the second portion of the permit modification. The additional information and proposed changes are included in Section 4.0.

4.0 PROPOSED MODIFICATION TO PART III OF THE HANFORD SITE-WIDE PERMIT

This draft modification is the second portion of the Class 3 modification. The proposed draft permit modification, 8C.2021.3D, adds two LCS DWMUs to the IDF Permit.

This proposed permit modification will incorporate new and modified information to the following IDF Permit files:

- Unit-Specific Permit Conditions.
- Chapter 1.0, "Part A Form."
- Chapter 3.0, "Waste Analysis Plan."
- Chapter 4.0, "Process Information."
- Chapter 6.0, "Procedures to Prevent Hazards."
- Chapter 8.0, "Personnel Training."
- Chapter 11.0, "Closure."
- Appendix 4A1, "Phase 1 Critical Systems Design Report."
- Appendix 4A3, "Critical Systems Design Drawings."
- Appendix 4C, "Facility Response Action Plan."

- Appendix 4D, "Construction Specifications (C-1), RPP-18489, Rev. 1."
- Appendix C7, "Leachate Monitoring Plan." (new)
- Appendix C7A, "Sampling and Analysis Plan for IDF Leachate." (new)
- Appendix C8, "Sub-Surface Liquids Monitoring and Operations Plan." (new)
- Appendix 11A, "Visual Sampling Plan Report Documentation." (new)

Draft changes are represented in the following manner:

- Modifications to existing permit documents appear in red-line strike out in the draft permit, and only the new text (red-line) is open for public comment during this comment period.
- Text in the new permit documents identified above is not shown in red-line strike out, and the entire permit document is open for public comment.

As a result of reviewing the public comments received, and after requesting the additional information from the Permittees and performing a technical review, Ecology made the following modifications to the draft submittal:

- Additional engineering drawings and documents were added to support the drafting of the IDF Permit. Some of the drawings and documents were submitted for Ecology review only.
- Ecology updated Unit-Specific Permit Condition as detailed in the following section, *Draft Permit Conditions*.
- Ecology updated Chapter 1.0, "Part A Form" to clarify that the LCS consists of two (2) Miscellaneous Units to store liquid leachate (Waste Code F039).
- Ecology updated Chapter 3.0, "Waste Analysis Plan" to clarify that the LCS consists of two (2) Miscellaneous Units to store liquid leachate.
- Ecology updated Chapter 4.0, "Process Information" to clarify that the LCS consists of two (2) Miscellaneous Units to store liquid leachate and to add the background and regulatory information for permitting of these units. Section 4.3.11, Spill Response, was revised to clarify the required response actions in the event of a spill from the LCS DWMUs, as explained in the following section, *Draft Permit Conditions*. Sections 4.3.2, 4.3.4 and 4.3.10.2 were revised as described in the following paragraphs explaining the liner system upgrade and in the following section, .
- Ecology updated Chapter 6.0, "Procedures to Prevent Hazards" to clarify that the LCS consists of two (2) Miscellaneous Units to store liquid leachate. Other changes include editorial changes including regulatory reference and acronyms for clarity. In Table 6-3, the last footnote was revised to avoid permit language that may be construed as deferring regulatory authority to another party (i.e., Independent Qualified Registered Professional Engineer ([IQRPE])).
- Ecology added Chapter 8.0, "Personnel Training."

- Ecology updated Chapter 11.0, "Closure" to clarify that the LCS consists of two (2) Miscellaneous Units to store liquid leachate. Other changes include editorial changes and adding reference of "Visual Sampling Plan Report Documentation" as Appendix 11A in Section 11.2.2.3. The expected durations for LCS closure activities in Table 11-1 were revised to require closure activities to be completed within a timeframe of 180 days, in accordance with WAC 173-303-610(4)(b).
- Ecology updated Appendix 4A1, "Phase 1 Critical Systems Design Report" as described in the following paragraphs explaining the liner system upgrade.
- Ecology updated Appendix 4A3, "Critical Systems Design Drawings" as described in the following paragraphs explaining the liner system upgrade.
- Ecology updated Appendix 4C, "Facility Response Action Plan" to delete the fourth sentence in Section 4CB.1, "The surface impoundment requirements are only applicable to the tank liners" as explained in the following section, *Draft Permit Conditions*.
- Ecology updated Appendix 4D, "Construction Specifications (C-1), RPP-18489, Rev. 1" as described in the following paragraphs explaining the liner system upgrade.
- Ecology added Appendix C7, "Leachate Monitoring Plan."
- Ecology added Appendix C7A, "Sampling and Analysis Plan for IDF Leachate."
- Ecology added Appendix C8, "Sub-Surface Liquids Monitoring and Operations Plan."
- Ecology added Appendix 11A, "Visual Sampling Plan Report Documentation."

Since the original construction of the LCU liners, the Permittees proposed to upgrade the liner system with a different design. As detailed in Section 4.3.4 in Chapter 4, the proposed upgrade will replace the original XR-5, a proprietary material, with Linear Low-Density Polyethylene (LLDPE) material for both the primary and secondary liners. The new liner material, LLDPE, would be welded to factory-fabricated High-Density Polyethylene (HDPE) piping and flatstock penetration assemblies to provide welded connections for the LLDPE liner, creating a tight and durable liner pipe penetration and eliminating the use of bolted connections with gaskets to seal the penetration. Also, a Geosynthetic Clay Liner (GCL) will replace the original geotextile for cushioning under the secondary liner to provide additional leak protection.

On July 25, 2022, Ecology received a Temporary Authorization (TA) request from the Permittees detailing a limited scope of installation and testing of the upgraded liners. Also included in the TA request was the additional information to support Ecology's decision to roll the proposed liner upgrade into this Class 3 permit modification. On August 4, 2022, Ecology responded to the TA request and approved the work requested by the Permittees. This proposed liner upgrade requires updating Sections 4.3.2, 4.3.4 and 4.3.10.2 in Chapter 4, "Process Information," Unit-Specific Permit Conditions, and the following three Appendices, which were previously outside the scope for this Class 3 permit modification. These documents were updated to include proposed permit language to describe the liners:

- Appendix 4A1, "Phase 1 Critical Systems Design Report."
- Appendix 4A3, "Critical Systems Design Drawings."
- Appendix 4D, "Construction Specifications (C-1), RPP-18489, Rev. 1."

Draft Permit Conditions

After performing a technical review, Ecology continued collaborating with the Permittees to develop new or revised permit conditions which support the operation of the two LCS DWMUs as miscellaneous units to store leachate collected from the IDF disposal cells.

The scope of the unit-specific conditions includes leachate collection component management (including monitoring and management of the LCU and associated ancillary equipment) as necessary to operate the two LCS DWMUs. The draft permit conditions are focused on the design and operation requirements found in WAC 173-303-680, *Miscellaneous units*, WAC 173-303-640, *Tank systems*, and WAC 173-303-650, *Surface impoundments*, as summarized below:

- Ecology added a unit description, acronyms and definitions associated with the LCS DWMUs.
- Several existing conditions were updated where the LCS DWMUs are applicable.
- Ecology revised the existing condition (III.11.B.5) to make the LCS DWMU applicable to inspection requirement.
- Ecology deleted an existing permit condition that required the Permittees to submit a leachate monitoring plan to Ecology for review, approval, and incorporation into the permit (III.11.F.1.a). The Permittees met this requirement by submitting the leachate monitoring plan for the Class 3 permit modification.
- Ecology revised the existing condition (III.11.F.1.b) to clarify leachate sampling requirement in accordance with Appendix C7A, "Sampling and Analysis Plan for IDF Leachate" (III.11.F.1.a).
- Ecology added seven (7) new conditions under III.11.F.4, Monitoring and Management of the Leachate Collection System, to support operation of the LCS DWMUs. Among them;
 - Condition III.11.F.4.c was added specifically to address the response actions in the event of a spill from the LCUs and the ancillary equipment. Ecology and the Permittees worked together to develop this draft condition while revising Chapter 4, Section 4.3.11, Spill Response, for clarity in the required response actions in the event of a spill from the LCS DWMUs, in accordance with the draft condition III.11.F.4.c. Additionally, Ecology deleted the fourth sentence in Section 4CB.1 of Appendix 4C, which reads, "The surface impoundment requirements are only applicable to the tank liners" for the same reason.

- Condition III.11.F.4.e was added to support the upgraded liner systems as described in the previous page. Ecology determined that GCL addition is an enhancement to the robustness and resilience of the liner design, fulfilling the requirement for a lower component of the composite bottom liner (i.e., compacted soil material with a hydraulic conductivity of no more than 1×10^{-7} cm/sec), in accordance with WAC 173-303-650(2)(j)(i)(B).
- Condition III.11.F.4.f was added to require the permittees to submit a permit modification request to Ecology to add a Sampling and Analysis Plan to support the LCS DWMUs.
- Additional permit conditions are proposed that address maintaining the physical structure of the LCS, development of a schedule for conducting Integrity Assessments on the LCUs, and monitoring and recording of leachate in the LCS.

Supplemental Information

The following documents will be hosted with the draft permit as supplemental information to support public review and comment on the draft permit. The information will not be incorporated into the permit, but is included with this permit modification:

- *Integrated Disposal Facility Action Leakage Rate for Leachate Storage Tanks* (IDF-00015, Rev. 0).
- *IQRPE Design Assessment Report for the IDF Leachate Transfer Pipeline* (REG-1302, Rev. 0).
- *IQRPE Installation Assessment Report for IDF Leachate Transfer Pipeline* (REG-1280, Rev. 0).
- *IQRPE Design Assessment Report for IDF Leachate Tank Domes* (REG-1252, Rev. 0).
- *IQRPE Design Assessment Report for IDF Leachate Tank Liner Replacement* (REG-1298, Rev. 0).

The above four IQRPE reports were not included in the original Class 3 permit modification request. However, Ecology determined that this information should be included as supporting information for public review to support this permit modification. Ecology received them on December 14, 2021, and June 30, July 25, and August 4, 2022. Ecology added references to them in the list of applicable IQRPE reports for the LCS in Chapter 4, Section 4.3.2, Design & Installation Requirements.

5.0 PROCEDURES FOR REACHING A FINAL DECISION ON THE DRAFT PERMIT MODIFICATION

The Washington State Dangerous Waste Regulations in WAC 173-303-830 describe the types of changes or modifications that may be made to a Dangerous Waste Permit issued by Ecology.

This draft permit modification was prepared according to the procedures in WAC 173-303-840(2). As required by WAC 173-303-840(3)(d), draft permits issued by Ecology will have at least a 45-day public comment period. The public comment period for this draft permit will be December 5, 2022 through January 20, 2023.

Comments must be post-marked, received by e-mail, or hand-delivered no later than close of business (5:00 p.m. PST) January 20, 2023.

Direct all comments to (electronic preferred):

Daina McFadden
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, WA 99354

eComments link: <https://nw.ecology.commentinput.com/?id=JFVp9>.

Ecology will consider and respond to all written comments on this draft permit modification that are submitted by the January 20, 2023, deadline. At the completion of the 45-day public comment period Ecology will make a final permitting decision. If the final decision is to issue the permit, Ecology will issue a final permit for Part III, Operating Unit Group 11, IDF to the Permittees, that will become effective 30 days after the issuance date. If the final decision includes substantial changes to the draft permit modification because of public comment, Ecology will consider initiating a new public comment period.

A public hearing is not scheduled, but if there is enough interest, we will consider holding one.

To request a hearing or for more information contact:

Daina McFadden
Washington State Department of Ecology
(509) 372-7950
E-mail address: hanford@ecy.wa.gov

Ecology will also issue a Response to Comments document to the Permittees and the public upon issuance of the final permit. The final permit modification may be appealed within 30 days after issuance. If there is no appeal, the permit will be effective 30 days following issuance.

For additional information call (509) 372-7950 or e-mail hanford@ecy.wa.gov.

Hanford Public Information Repositories and Administrative Records

Richland, Washington

Washington State Department of Ecology
Nuclear Waste Program Resource Center
3100 Port of Benton Blvd.
Richland, WA 99354
(509) 372-7950

U.S. Department of Energy
Administrative Record
2440 Stevens Center Place, Room 1101
Richland, WA 99354
(509) 376-2530

Washington State University Tri-Cities
Department of Energy Reading Room
2770 Crimson Way, Room 101L
Richland, WA 99354
(509) 375-7443

Other Locations:

Portland

Portland State University
Branford Price Millar Library
1875 Southwest Park Avenue
Portland, OR 97201
(503) 725-4542

Spokane

Gonzaga University
Foley Center
502 East Boone Avenue
Spokane, WA 99258
(509) 313-6110

Seattle

University of Washington Suzzallo Library
P.O. Box 352900
4000 15th Avenue Northeast
Seattle, WA 98195
(206) 543-5597

Information on the proposed permit modification is also available online at <http://www.ecy.wa.gov/programs/nwp/commentperiods.htm>. If special accommodations are needed for public comment, contact Ecology's Nuclear Waste Program at (509) 372-7950 or hanford@ecy.wa.gov.

6.0 STATE ENVIRONMENTAL POLICY ACT

Ecology is adopting Tank Closure and Waste Management Environmental Impact Statement (TC&WM EIS) Alternative 2 for tank waste treatment, *Implement the Tank Waste Remediation System EIS Record of Decision with Modifications*. Ecology is also adopting TC&WM EIS *Waste Management Alternative 2: Disposal in IDF, 200-East Area Only*.

Title of Document Being Adopted: *Final Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, WA, USDOE/EIS-0391*, prepared December 5, 2012.

This is available at: <https://www.hanford.gov/page.cfm/FinalTCWMEIS>.

Ecology made a State Environmental Policy Act (SEPA) determination # 202004362 for the IDF on August 24, 2020. Additional SEPA review is not required for the current permit modification to support the operations of the IDF.

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